



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/092,766	03/07/2002	Arun Kwangil Iyengar	YOR920010661US1	8735

7590 03/11/2004
Ryan, Mason & Lewis, LLP
90 Forest Avenue
Locust Valley, NY 11560

EXAMINER

PEIKARI, BEHZAD

ART UNIT	PAPER NUMBER
----------	--------------

2186

9

DATE MAILED: 03/11/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/092,766

Applicant(s)

IYENGAR ET AL.

Examiner

B. James Peikari

Art Unit

2186

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 January 2004.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
4a) Of the above claim(s) 14-20, 26 and 28 is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-12, 21-25 and 27 is/are rejected.
7) ☒ Claim(s) 13 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 29 April 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group I, claims 1-13, 21-25 and 27, in Paper No. 6 is acknowledged.

Claim Rejections - 35 USC § 112

2. Claims 7, 11 and 24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. As for claim 7, the meaning and scope of the term "cost" is not clear. As for claims 11 and 24, "the resource becoming a bottleneck" is unclear and should probably read "access to the resource becoming bottlenecked due to heavy bus traffic", if this is what applicant intended.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-6, 8-10, 12, 21-23, 25 and 27 rejected under 35 U.S.C. 102(b) as being clearly anticipated by Gannon et al., U.S. 5,265,232.

Upon careful inspection, it appears that the claims are so broad that they would have been taught by any prior art multiprocessor system having local L1 caches and a shared L2 cache wherein some means of coherency (e.g., snooping, broadcasting, cross-interrogating, etc.) is achieved using a directory. A multitude of such systems were known at the time of the invention. The examiner cannot see any difference between these systems and the claimed invention.

Gannon et al. is cited as an example of just such a system. Gannon et al. teach storing objects in a central cache (*L2 cache*), replicating a data object in at least one connected local cache (*L1 cache*), maintaining in accordance with the central cache a directory describing the content of the local caches (*XI directory*), in response to a change to cached data, coordinating a corresponding update in the local cache (*i.e.*, "*coherence*" explained throughout Gannon et al.).

As for requesting an object from the central cache or a remote server, *i.e.*, a lower level of memory hierarchy when the object has not been found at a higher level, this was how *all* hierarchical memory systems worked, including the Gannon et al. system (*note column 4, lines 43-47*).

As for the use of a cache replacement policy, note the use of an LRU scheme, wherein the "recently used" status is a measurable (*i.e.*, "metric") quantity relative to all other cached objects and is correlated with a frequency (of access).

Allowable Subject Matter

5. Claim 13 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. Claims 7, 11 and 24 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Peikari whose telephone number is (703) 305-3824. The examiner is generally available between 8:00 am and 9:30 pm, EST, Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Kim, can be reached at (703) 305-3821.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-3900.

Art Unit: 2186

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 746-7239 (Official communications)

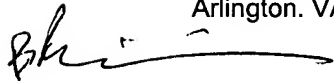
or:

(703) 746-7240 (for Informal or Draft communications)

or:

(703) 746-7238 (for After-Final communications)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,
Arlington, VA., Sixth Floor (Receptionist).



B. James Peikari
Primary Examiner
Art Unit 2186

3/8/04